

WHAT IS CLAIMED IS:

1. An encapsulated formulation comprising a substantially water-free mixture of
5 probiotic bacteria with monovalent alginate salts, wherein the mixture has been formed
and is maintained in a substantially water-free environment.
2. The encapsulated formulation of claim 1 wherein the water activity is between 0.01-
0.07.
3. The encapsulated formulation of claim 2 wherein the water activity is 0.028 or less.
- 10 4. The encapsulated formulation of claim 1 wherein the monovalent alginate salts are
sodium alginate or potassium alginate.
5. The encapsulated formulation of claim 1 wherein the probiotic bacteria is from the
Lactobacillus or *Bifidobacterium* genera..
6. The encapsulated formulation of claim 1 wherein following formation of the mixture
15 it reacts with acidic environment to generate alginic acid.
7. The encapsulated formulation of claim 1 wherein an alginic acid forms a sheath around
the mixture.
8. The encapsulated formulation of claim 1 wherein the capsule materials are made of
gelatin, cellulose or a derivative of cellulose.
- 20 9. The encapsulated formulation of claim 8 wherein the capsule materials do not include
any alginates in them.
10. The encapsulated formulation of claim 1 wherein the alginate salt is dried to a
moisture content below 5% prior to mixing with probiotic bacteria.

11. The encapsulated formulation of claim 1 wherein the probiotic bacteria are present at a concentration of 10^7 to 10^{11} cfu per capsule or tablet.
12. The encapsulated formulation of claim 3 wherein the weight ratio of sodium alginate to water-free mixture is 10-99%.
- 5 13. The encapsulated formulation of claim 11 wherein the weight ratio of sodium alginate to water-free mixture is 20%.
14. A process of forming a formulation of a substantially water-free mixture of probiotic bacteria with monovalent alginate salts, comprising:
- drying the monovalent alginate salts to a moisture content below 5%; and
- 10 mixing probiotic bacteria with the dried monovalent alginate salts.
15. The process of claim 14 wherein the method of drying is low temperature vacuum drying.
16. The process according to claim 14 wherein the method of drying is low temperature infrared convection drying.
- 15 17. The process of claim 14 further including the step of encapsulating the formulation.
18. The process of claim 17 wherein the formulation is encapsulated in capsule materials that contain one or more of: gelatin, cellulose or a derivative of cellulose.
19. The process of claim 18 wherein the capsule materials do not contain any alginates.
20. The process of claim 14 wherein the formulation includes grape skin extract.
- 20 21. The process of claim 14 wherein the formulations contain one or more of the following: microcrystalline cellulose, anhydrous dextrose, food grade starch, kaolin clay and silica.

22. The process of claim 14 further including the step of freeze-drying or spray drying the probiotic bacteria.
23. The method of claim 14 wherein the formulation has a water activity of between 0.01-0.07.
- 5 24. The method of claim 14 wherein the alginate salt is sodium alginate or potassium alginate.
25. The method of claim 14 wherein the probiotic bacteria is from the *Lactobacillus* or *aroundBifidobacterium* genera.
26. The method of claim 14 wherein the weight ratio of sodium alginate to water-free
10 mixture is 10-99%.
27. The method of claim 26 wherein the weight ratio of sodium alginate to water-free mixture is 20%.